Connecticut Department of Environmental Protection

2008 Quality Management Plan for
Environmental Programs Funded by
The U.S. Environmental Protection Agency

State of Connecticut
Department of Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

http://www.ct.gov/dep

[This is a revised, digital version of DEP's 2008 Quality Management Plan.
The revision date is March 9th, 2011.
All text specific to this digital document is in, or referenced by notes in, this format and font.
Ex. "[Jan. 09, 2008]"
This document includes functional web links to a number of relevant websites. These links were all valid as of the revision date, but website links or content may have changed after this date.
This document can be found on DEP's public website, at:
http://www.ct.gov/dep/lib/dep/quality_assurance/qmp_2008.pdf.]

Signature Page

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**Connecticut Department of
Environmental Protection**

U.S. Environmental Protection Agency

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Gina McCarthy, Commissioner

Date: [signed 12/01/08]

_____
Lynn Hamjian, Connecticut State Director

Date: [signed 12/15/08]

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Amey Marrella, Deputy Commissioner
Branch of Environmental Quality

Date: [signed 11/28/08]

_____
Gerard Sotolongo, Regional Quality
   Assurance Manager

Date: [signed 12/16/08]

_____
Anne Gobin, Chief
Bureau of Air Management

Date: [signed 11/28/08]

_____
Yvonne Bolton, Chief
Bureau of Materials Management
  and Compliance Assurance

Date: [signed 11/28/08]

_____
Betsey Wingfield, Chief
Bureau of Water Protection
  and Land Reuse

Date: [signed 11/26/08]

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[Use underlined web links below to access published material represented by Appendices A, B, C, E, F and G. Publication dates associated with web-based material at the time of this report's revision - March 01, 2011 – are noted. See also note for Appendix D.]

1. Introduction to DEP's Quality Management Plan

<u>Background</u>

This document is the *Connecticut Department of Environmental Protection* (DEP) *2008 Quality Management Plan* (QMP) *for Environmental Programs Funded by the U.S. Environmental Protection Agency* (EPA). EPA requires that DEP have an approved QMP in place as a condition of receiving grant funding from EPA to support environmental programs.

The 2008 CT DEP QMP is considered approved and in effect once the original hardcopy version has been signed and dated by all DEP and EPA officials listed on the Signature Page. This plan replaces DEP's previous QMP, dated August 2002. The 2008 plan will remain valid for up to five years (into 2013), by which time DEP must prepare a new QMP and have it approved by EPA. This plan includes a list of specific objectives to be achieved in the first year, which will be considered the equivalent of Connecticut's State Fiscal Year 2009 (FY09), or July 1, 2008 through June 30, 2009.
[Revision note: More information about QMP annual objectives can be found on DEP's public website. On the Quality Assurance page - http://www.ct.gov/dep/cwp/view.asp?a=2701&q=323452&depNav_GID=1651 - look for the links labeled "Annual Reporting of Quality System Progress."]

This plan contains information designed for use by both DEP management and staff and EPA management and staff. For example, descriptions of DEP's organizational structure should benefit EPA personnel, while information regarding EPA Quality Assurance requirements and guidance is designed to be a reference for DEP personnel.

EPA requires DEP to produce this QMP as part of EPA's broader requirement that all organizations receiving grant funding "establish and implement" a "Quality System" (QS) that applies to all relevant environmental programs. This requirement is summarized in the following quote from the "Frequent Questions" section of the EPA Quality System website (http://www.epa.gov/quality/):

> All EPA and non-EPA organizations conducting environmental programs on behalf of EPA which acquire, generate, compile, or use environmental data and technology are required to establish and implement a *quality system*. This includes work performed internally, under contracts, cooperative agreements, interagency agreements, State-EPA agreements, State, local, and Tribal financial assistants/grants (including Performance Partnership Grants and Agreements), research grants, and in response to statutory or regulatory requirements and consent agreements.

EPA defines a Quality System as "A structured and documented framework of an organization for its planning, implementing, documenting, and assessing work performed and for carrying out required procedures and activities for ensuring satisfaction in its work processes, products, and services." (From the "Glossary of Quality-Related Terms" section of EPA's QS website.) While EPA uses the formal term "Quality System" to describe this "framework," terms such as "Quality Assurance System" and "Quality Assurance Program" are commonly used to represent the same basic concept.

Note that EPA's QS requirements apply to the agency's own operations as well as those of non-EPA organizations such as DEP. Much additional information related to the EPA Quality System can be found at the EPA Quality System website (see link above). A good starting point for learning more about EPA's approach to Quality Assurance is the *Overview of the EPA Quality System for Environmental Data and Technology* (document link at http://www.epa.gov/quality/qa_docs.html - under heading "General Guidance"). This

document is included as Appendix A in hardcopy versions of this QMP. This link also provides access to approximately two dozen additional "Agency-wide Quality System Documents."

The primary EPA unit responsible for overseeing DEP's compliance with EPA's QS policies is the EPA New England Quality Assurance Unit, affiliated with the EPA New England Regional Laboratory (NERL) located in North Chelmsford, MA. (On its website, NERL is also identified as the Office of Environmental Measurement and Evaluation.) The Quality Assurance Unit is a "multi-disciplinary group of chemists, scientists, environmental protection specialists, and a chemical engineer. The staff is responsible for assuring the quality of data used to make decisions in support of the Agency mission, and implementing and assessing the regional Quality system." (From the "Quality Assurance" section of the EPA New England Regional Laboratory website: http://www.epa.gov/ne/lab/qa/index.html.) Beyond mention of general EPA Quality-related requirements and guidance, most references to EPA in this plan refer to The EPA New England QA Unit (EPA NE QA). This unit is responsible for approving DEP's Quality Management Plan.

EPA requires any organization subject to its Quality System requirements to prepare and submit for approval a Quality Management Plan. A QMP "identifies the organizational structure, policy and procedures, functional responsibilities of management and staff, lines of authority, and its processes for planning, implementing, documenting, and assessing all activities conducted under the organization's quality system" (from "Frequent Questions"). Approved QMPs may remain in effect for up to five years.

EPA has published QMP requirements in the document *EPA Requirements for Quality Management Plans - EPA QA/R2*, commonly referred to simply as "R2" (document link at http://www.epa.gov/quality/qa_docs.html under heading "Specifications for non-EPA Organizations"). This document is included as Appendix B in hardcopy versions of this QMP.

EPA requires all QMPs to address ten standard Quality System-related elements:
- Management and Organization
- Quality System Components
- Personnel Qualifications and Training
- Procurement of Items and Services
- Documents and Records
- Computer Hardware and Software
- Planning
- Implementation of Work Processes
- Assessment and Response
- Quality Improvement.
DEP's QMP follows this format in sections 3 through 12. (The "Purpose" sentence at the beginning of each of these sections comes from *R2*.)

The EPA New England Quality Assurance Unit has begun to perform periodic Quality System assessments of New England state environmental agencies and other regional organizations subject to EPA's QS requirements, using each organization's current QMP as the primary reference for determining whether an agency such as DEP is adhering to its stated Quality System-related policies and procedures.

Quality Management Plans must be reviewed annually and the results of the review documented and sent to EPA. EPA NE QA has established certain annual Quality System documentation requirements in conjunction with the general annual review requirement. These requirements are covered in the document *Annual Reporting of Quality System Progress* (document link at http://www.epa.gov/ne/lab/qa/qualsys.html under heading

"EPA New England Documents – Assessment and Data Review" at previous link). This document is included as Appendix C in hardcopy versions of this QMP. This link also provides access to additional "Quality Systems Documents" produced by EPA New England and relevant to DEP's Quality System.

Since EPA is subject to its own Quality System requirements, different sections of that agency must prepare their own Quality Management Plans. The QMP for EPA New England can be found under the Quality Assurance section of the EPA New England NERL website (document link at the above link under heading "EPA New England Documents").

Important Characteristics of DEP's QMP

DEP's Quality Management Plan is designed in part to be a practical planning document that presents a basic blueprint for developing, improving, and refining useful and practical quality system elements within DEP. It is not intended to be simply a snapshot of all relevant policies and procedures that are, or should be, in place today. In keeping with this approach, Section 2 introduces the concept of "DEP Quality System Objectives," specific annual objectives focused on producing a better Quality System within DEP.

In the sections of this plan that emphasize policies and procedures (such as Documents and Records), the QMP references general agency policies and procedures that should be followed, EPA policies and procedures that should be followed, and any DEP QS objectives to be met in the coming year.

This plan does not attempt to directly build upon or maintain strict connectivity with DEP's previous QMP, which went into effect in 2002. Because of the many changes that have occurred within the agency, in terms of management and staff personnel, organizational restructuring, new policies and procedures, etc., the decision was made to produce a completely new QMP.

This plan will be posted on DEP's public website (http://www.ct.gov/dep/) once it has been approved. EPA requires that all QMPs be reviewed by the originating agency at least annually and revised or updated as necessary. All such changes will also be posted on the DEP website.
[Revision note: As noted on the Title Page, a digital version of this document is published on DEP's public website, at: http://www.ct.gov/dep/lib/dep/quality_assurance/qmp_2008.pdf. Revised versions of the digital QMP are published periodically.]

The primary author of this plan is Jonathan Scull. Jon Scull is DEP's designated Quality Assurance Coordinator for environmental programs funded by EPA. He welcomes all questions, suggestions, and comments regarding this plan. He can be reached at:

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2. Introduction to DEP's Quality System

It is DEP's intention to establish and implement a decentralized Quality System to meet EPA's Quality System requirements. This strategy is similar to the approach taken by several other New England states, particularly the Massachusetts Department of Environmental Protection (as documented in its current Quality Management Plan, effective Date: January 2007).

Within DEP there is no central office or fulltime staff responsible for agency-wide quality assurance/quality control functions, either as they relate to specific EPA requirements or as they pertain to agency operations in general. Nor are there any plans for creating such an office or assigning additional staff resources to this function. It should be noted that there are no specific Connecticut State Government requirements or initiatives related to quality assurance, although some other state agencies do include Quality Assurance units.

Within such a decentralized system, DEP will place much of its emphasis on Quality Assurance at the program and project level. Specifically, the agency's Quality System will focus on programs and projects that EPA has identified as being subject to its Quality System requirements. These are the programs and projects that are required to have Quality Assurance Project Plans (QAPPs). Many DEP staff associate EPA's Quality Assurance program first and foremost with the requirement to prepare QAPPs and submit them to EPA for review and approval. QAPPs are one important component of Quality Systems as EPA defines them, and the projects and processes they describe are a basic building block in the development of DEP's Quality System.

A QAPP is "a document that describes the intended technical activities and project procedures that will be implemented to ensure that the results of the work to be performed will satisfy the stated performance or acceptance criteria. The amount of information presented and the planned activities to ensure the value of the work will vary according the type of study and the intended use of the data." (From the "Glossary of Quality-Related Terms" section of EPA's QS website.) EPA describes the relationship between a QMP and QAPPs as follows (from *EPA Requirements for Quality Management - EPA QA/R2*):

> The Quality Management Plan may be viewed as the 'umbrella' document under which individual projects are conducted. The Quality Management Plan is then supported by project-specific QA Project Plans. A QA Project Plan is the 'blueprint' by which individual projects involving environmental data are implemented and assessed and how specific quality assurance (QA) and quality control (QC) activities will be applied during a particular project.

The following is a summary of the significant characteristics of DEP's planned Quality System:

- The system will apply specifically to environmental programs funded by EPA "which acquire, generate, compile, or use environmental data and technology."

- Within those programs, system implementation will focus initially on the work undertaken through projects that require QAPPs. This includes projects that have QAPPs in development, under review, or approved and in effect at DEP at any given time.

- Management and staff in the Environmental Quality Branch bureaus of Air Management (BAM), Materials Management and Compliance Assurance (MMCA), and Water Protection and Land Reuse (WPLR) will have the primary responsibility and authority for ensuring that projects within their bureau that require QAPPs have such plans developed and approved by EPA, and are managed in accordance with those

plans (see Section 3 for a complete description of DEP's organization). Bureau management and staff will also have the primary responsibility and authority for ensuring that other aspects of DEP's Quality System are managed in accordance with DEP's approved Quality Management Plan.

- Each of the three bureaus will use QA Bureau Contacts to assist with implementing DEP's Quality System (see Section 3).

- Sets of specific annual Quality System objectives will be developed by DEP and provided to EPA NE QA at the beginning of each year over the five year period that this QMP is in effect. These objectives will become a part of the QMP and as such will be disseminated within the agency as well. DEP will perform internal assessments of these objectives to determine if and how these objectives are being met and will report the assessment results to EPA.

- The Quality System objectives for the 2008-2009 period (the first year of the QMP) are as follows:
  - update DEP's Quality Assurance Policy Directive (see Section 3)
  - report any changes to the organizational structure of the Bureaus of Air Management, MMCA, or WPLR to EPA NE QA as soon as new organizational charts are published (see Section 3)
  - sponsor QMP and Quality System awareness training in conjunction with approval of the 2008 DEP QMP (see Section 5)
  - make sure that all environmental programs covered by this plan have relevant information included on Records Retention Schedules as required by Connecticut's Public Record Program (see Section 7)
  - assemble all QAPPs expected to be active at/by the end of FY09 and post them on DEP's intranet website (and converted to electronic format if necessary) (see Section 7)
  - develop a strategy for supplying all necessary DEP staff with standardized statistical software adequate for their jobs (see Section 8)
  - develop and maintain a status matrix of pending and active QAPPS and post it on DEP's intranet website, with updates reported to EPA NE QA on a monthly basis or whenever requested (see Section 9)
  - complete a pilot project for documenting Standard Operating Procedures (SOPs) and posting them on DEP's intranet website (see Section 10)

- The general goals behind the initial set of Quality System objectives are:
  - to make related information more openly available to both DEP and EPA
  - to make sure staff have the tools they need to perform their jobs
  - to make sure existing agency and state policies and procedures are being followed.
  See Section 12 for more details about processes connected to QS objectives.

3. MANAGEMENT AND ORGANIZATION

Purpose – To document the overall policy, scope, applicability, and management responsibilities of the organization's quality system.

Background

State Statute created the Connecticut Department of Environmental Protection in 1971 as an agency within the Connecticut State Government's Executive branch. Its chief executive officer, the Commissioner, is appointed by and reports to the Governor. At this time DEP has about 1000 fulltime employees, plus additional seasonal staff. Its operating budget for the current fiscal year is approximately $145 million. Funding comes from multiple sources, including over $31 million from "Federal and Other Activities."

The following are DEP's Mission Statement and a "Brief Description of [the] Agency," both from DEP's public website (see previous link):

> The mission of the Department of Environmental Protection is to conserve, improve and protect the natural resources and environment of the State of Connecticut in such a manner as to encourage the social and economic development of Connecticut while preserving the natural environment and the life forms it supports in a delicate, interrelated and complex balance, to the end that the state may fulfill its responsibility as trustee of the environment for present and future generations.

> The DEP achieves its mission through regulation, monitoring, inspection and enforcement, and licensing procedures that help control air, land and water pollution in order to protect health, safety, welfare and natural resources. DEP also improves and coordinates the state's environmental plans, functions and educational programs in cooperation with federal, regional and local governments, other public and private organizations and concerned individuals, while managing and protecting the flora and fauna for compatible uses by the citizens.

Statement of DEP's Policy on Quality Assurance

The Connecticut Department of Environmental Protection has issued a formal policy statement regarding Quality Assurance that includes references to EPA and DEP's first Quality Management Plan. This policy statement exists as an official DEP Directive.

The Quality Assurance Policy Directive, in its entirety, is included here. This directive is also available to DEP staff online through the agency's intranet website.
[Revision note: The Quality Assurance Policy Directive included in the original version of the QMP has been replaced. The text of the new directive is included after the following paragraph.]

DEP Quality System Objective for FY09: Replace this version of the directive with an updated revision. Specific changes need to be made to the "Procedure" section: the text includes a specific reference to the agency's first QMP, adopted in 2002; it also includes some out-of-date agency bureau names and a description of a "Bureau Quality Assurance Management Lead" structure that no longer exists. This objective will be targeted for completion in conjunction with approval of the 2008 DEP QMP as a way to increase awareness of the new QMP and DEP's Quality System.

[Text of new Quality Assurance Policy Directive, dated Sep. 16, 2009]

Department of Environmental Protection DIRECTIVE (MANUAL CODE: 3130, D1)

SUBJECT: Quality Assurance Policy

PURPOSE: The mission of the Department of Environmental Protection (DEP) is to preserve and enhance the environment for all of Connecticut's people. It is important to the success of our mission that staff use consistent and appropriate practices for data collection and analysis to provide a firm base for environmental program decisions. This directive informs staff of the standard of quality for environmental program data collection and use and provides guidance on appropriate actions to meet this standard.

POLICY: DEP's quality assurance policy maintains that all environmental data collected, generated and processed is scientifically valid; of known precision and accuracy; sufficiently complete and representative for the intended purpose; comparable to data collections and analyses similar in scope and purpose; and legally defensible, as may be necessary for the intended purpose. The data and information used as a basis for environmental program decisions, *i.e.*, establishing environmental quality standards, emissions limitations, permit limits and resource management plans, shall be in a form that may be clearly and understandably presented to the public.

PROCEDURE:
1. Quality Management Plan.
In 2008, DEP adopted the current *Quality Management Plan (QMP)* to provide guidance to agency staff when establishing and maintaining consistent and appropriate quality assurance, quality control and quality improvement for environmental data collection and analysis. DEP developed the QMP as a means of documenting how it will plan, implement and assess the effectiveness of quality assurance and quality control operations as applied to environmental programs funded by the United States Environmental Protection Agency (EPA). Staff involved with environmental data operations for EPA-funded programs shall be familiar with and consult the QMP and conform their activities to its guidance. The QMP is available on DEP's website.
2. Bureau Quality Assurance Management Lead.
The Air Management, Materials Management and Compliance Assurance, Water Protection and Land Reuse Bureaus have each assigned Quality Assurance Bureau Contacts to address QMP compliance efforts for their respective bureaus. DEP's Quality Assurance Coordinator will coordinate the Bureau efforts to maintain consistent practices among programs and Bureaus.
3. Written Plans and Guidance.
DEP's data quality management efforts will follow written plans and guidance, which each EPA-funded program must generate. All staff data operations shall conform to the appropriate plan and guidance documents.
4. State and Federal Laws and Requirements.
The DEP quality assurance system will be maintained in accordance with applicable state and federal laws and rules, standards, guidance, contractual requirements, and sound management practices.

Issued by: /S/Commissioner Amey Marrella
Date: September 16, 2009
Special Instructions: Replaces directive 3130 D.1 dated 4/14/05.
Distribution: Electronic

Organization

DEP has been described as a "super agency" because its mandate includes responsibilities that in other states are often handled by multiple agencies. The agency's basic organizational structure reflects its scope of duties. An organizational chart of DEP's basic structure, reproduced from DEP's public website, is included on the following page.

[Revision note: The "Agency Overview" chart included in this revision is current as of March 9th, 2011. Go to http://www.ct.gov/dep/lib/dep/human_resources/org_charts/OrgChartMain.pdf for the most current published "Agency Overview" chart for DEP.]

DEP has two main branches, commonly referred to as Environmental Quality and Environmental Conservation. (Note that in the organizational chart reproduced here the two main branches are not identified as "Environmental Quality" and "Environmental Conservation," but rather by the bureaus that constitute each branch.) The Environmental Quality Branch includes the Bureaus of Air Management, Materials Management and Compliance Assurance, and Water Protection and Land Reuse. The Environmental Conservation Branch includes the Bureaus of Natural Resources and Outdoor Recreation. Both branches are led by appointed Deputy Commissioners who report to the Commissioner. Each bureau, in turn, is headed up by a Bureau Chief and consists of multiple divisions managed by division directors. The typical division consists of multiple programs or similar subunits, each with its own supervisor and staff. Most divisions also include one or more assistant directors or equivalent positions; as the name implies, assistant directors typically report to division directors, but there is much variation as to where they fit into the organization.

DEP also includes a third branch, consisting of the Bureau of Financial and Support Services, plus a group of six independent agency-wide support offices (including Chief of Staff) that are referred to collectively as the Office of the Commissioner.
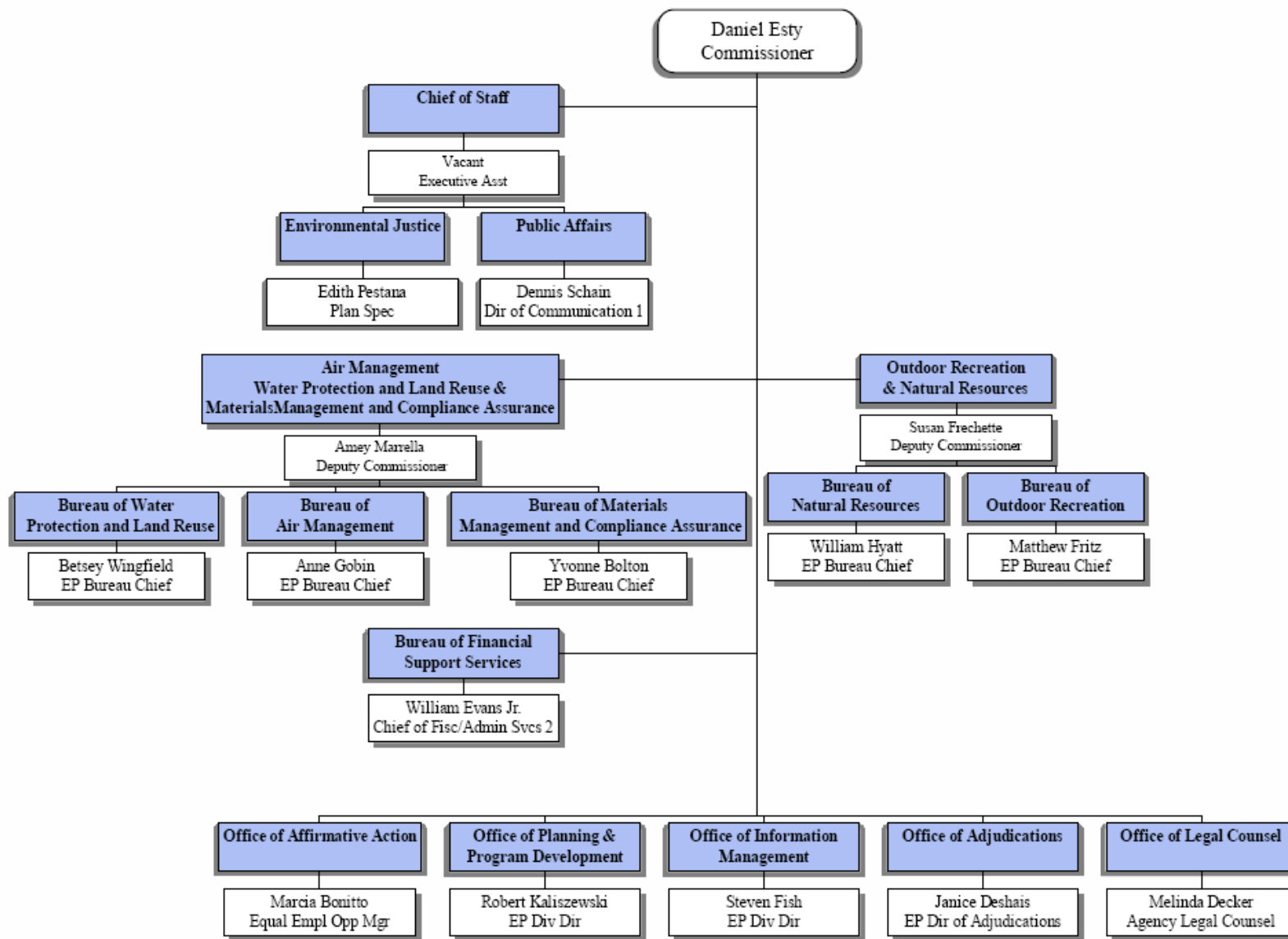
More information can be obtained about the functions and responsibilities of the various bureaus and offices within DEP by viewing "The Things We Do for You" page of the DEP public website: http://www.ct.gov/dep/cwp/view.asp?a=2690&q=322454&depNav_GID=1511. (Note that here the Deputy Commissioner for Environmental Quality is identified as the Deputy Commissioner for "Air, Waste, and Water.")

The Commissioner's senior staff is called the Commissioner's Cabinet. It consists of the Commissioner's Chief of Staff, the Deputy Commissioners for Environmental Quality and Environmental Conservation, the six Bureau Chiefs, the Agency's Legal Counsel, plus the directors of the following independent offices: Planning and Program Development, Information Management, and Adjudications, for a total of 14 individuals, including the Commissioner.

A more comprehensive set of current organizational charts for the agency (current as of October 1, 2008) is included as Appendix D in hardcopy versions of this QMP. The DEP programs that are directly subject to EPA's quality system requirements are all within the Environmental Quality Branch (Bureaus of Air Management, Materials Management and Compliance Assurance, and Water Protection and Land Reuse). In addition, programs within the Bureau of Financial and Support Services and within the Commissioner's Office provide support services that are relevant to the QMP. Therefore the organizational charts included for these parts of DEP show the entire structure, while detailed charts for the Bureaus of Natural Resources and Outdoor Recreation have been omitted.

Department of Environmental Protection

Revised March 2011

Daniel Esty
Commissioner

Chief of Staff

Vacant
Executive Asst

Environmental Justice

Public Affairs

Edith Pestana
Plan Spec

Dennis Schain
Dir of Communication 1

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Water Protection and Land Reuse &
MaterialsManagement and Compliance Assurance**

Amey Marrella
Deputy Commissioner

**Outdoor Recreation
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Betsey Wingfield
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**Bureau of
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Anne Gobin
EP Bureau Chief

**Bureau of Materials
Management and Compliance Assurance**

Yvonne Bolton
EP Bureau Chief

**Bureau of
Natural Resources**

William Hyatt
EP Bureau Chief

**Bureau of
Outdoor Recreation**

Matthew Fritz
EP Bureau Chief

**Bureau of Financial
Support Services**

William Evans Jr.
Chief of Fisc/Admin Svcs 2

Office of Affirmative Action

Marcia Bonitto
Equal Empl Opp Mgr

**Office of Planning &
Program Development**

Robert Kaliszewski
EP Div Dir

**Office of Information
Management**

Steven Fish
EP Div Dir

Office of Adjudications

Janice Deshais
EP Dir of Adjudications

Office of Legal Counsel

Melinda Decker
Agency Legal Counsel

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DEP Quality System Objective for FY09: - Report any changes to the organizational structure of the Bureaus of Air Management, MMCA, or WPLR to EPA NE QA as soon as new organizational charts are published. DEP has undergone much reorganization in the past several years and while no additional major restructuring is anticipated at this time, some degree of change is a given.

Quality Assurance Roles

Quality Assurance Coordinator:
DEP has a designated Quality Assurance Coordinator for environmental programs funded by EPA. The current QA Coordinator is a Supervising Environmental Analyst within DEP's Office of Information Management (OIM). As is illustrated in the previous organizational chart, the Office of Information Management is one of the independent offices that make up the Office of the Commissioner. It is separate and distinct from the Branch of Environmental Quality. The QA Coordinator reports to the Director of the Office of Information Management, who in turn reports to the Commissioner and, as noted, is a member of the Commissioner's Cabinet.

The QA Coordinator is DEP's primary point of contact between the agency and EPA on issues related to quality assurance. This individual is responsible for fulfilling DEP's basic Quality System reporting obligations to EPA. The QA Coordinator will also have the lead responsibility for accomplishing the DEP annual Quality System Objectives.

QA Coordinator:
        Jonathan Scull
Director, Office of Information Management:
        Steven Fish

QA Bureau Contacts:
The QA Coordinator will work with contacts affiliated with the three bureaus in the Environmental Quality Branch to implement DEP's Quality System, specifically the annual Quality System objectives. The QA coordinator and Bureau Contacts will meet on a regular basis to share best practices. At the present time each branch bureau chief has identified two staff members to serve as contacts, for a total of six staff members.

As of [March 01, 2011], the QA Bureau Contacts are as follows:

Air Management Bureau:
    [Tessa Gutowski. (Nonmonitoring programs])
    Reid Matusek   ([Monitoring programs])

Materials Management and Compliance Assurance Bureau:
    Timothy Baird (Emergency Response and Spill Prevention Division)
    James Creighton (Permitting and Enforcement Division)

Water Protection and Land Reuse Bureau:
    Michelle Bedson (Remediation Division)
    Christine Olsen (Planning and Standards Division)

The roles of QA Bureau Contacts will evolve as DEP implements its Quality System. If the need exists, individual Bureau Chiefs will define specific duties for contacts, particularly as they relate to assisting Project Managers (see below) in meeting QA requirements associated with environmental data projects. This may be useful in situations where a program must manage large number of QAPPs. Bureau Chiefs may identify additional contacts.

Project Managers:
"Project Manager" is a formal term used by EPA NE QA in the document *EPA New England Quality Assurance Project Plan Program Guidance* (document link under heading "EPA New England Documents – Planning" at previous link). This document is included as Appendix E in hardcopy versions of this QMP. The role of a Project Manager, as defined by EPA NE QA:

> The project manager is responsible for directing, coordinating, and overseeing all project activities for the Lead Organization [DEP in this case]. He/she is responsible for submitting the QAPP, QAPP amendments, revisions and annual review letters to appropriate personnel, with sufficient lead time, for review and approval … The project manager ensures that all technical issues identified during QA reviews are satisfactorily addressed and documented prior to beginning of field work.

Project Managers are identified in individual QAPPs. DEP's Quality Management Plan makes numerous references to Project Managers.

Environmental Data Programs

The two tables on the following pages represent DEP environmental data programs that are funded by EPA (with funding amounts) and that are subject to EPA's Quality System requirements, either by virtue of being part of the current Performance Partnership awarded to DEP from EPA, or because they are funded by separate EPA grants that contain specific Quality Assurance language. Note that the dollar amounts listed in the tables for certain programs include funding that does not come directly to DEP (for example, some funds may go to cover federal contract costs or to support regional organizations).
[Revision note: The two tables on the following pages contain updated information supplied by the DEP Bureau of Financial and Support Services in September, 2010.]

EPA program grants to CT DEP combined under the Performance Partnership Grant (PPG)

- Titles and Authorities from the FFY (federal fiscal year) 2010-2012 CT DEP/EPA Region 1 Environmental Performance Partnership Agreement (PPA).
- FFY 2010 Funding Amounts (and Note) from the CT DEP Bureau of Financial and Support Services, Financial Management Division.
  Note that dollar amounts listed for certain programs include funding that does not come directly to DEP
- Lead DEP Bureau and Division from multiple sources.

Federal Program Title/ Federal Authority	Funding Amount from EPA - FFY 2010	Lead DEP Bureau	Lead DEP Division
- Air pollution control [Clean Air Act (CAA) - Section 105]	$3,528,163	Air Management	Bureau Chief
- Water pollution control [Clean Water Act (CWA) Section 106]	$2,480,700	MMCA[1] /WPLR[1]	Permitting and Enforcement Planning and Standards
- Non-point source management [CWA Section 319]	$800,000 See Note 1 below	WPLR	Planning and Standards
- Safe Drinking Water Act (SDWA) [Underground Injection Control SDWA Section 1443b]	$57,000	MMCA	Permitting and Enforcement
- Hazardous waste management [Resource Conservation and Recovery Act (RCRA) Section 3011]	$2,494,000	MMCA	Engineering and Enforcement
- Underground storage tanks [Solid Waste Disposal Act (SWDA) Section 9010 (USTs enforcement)]	$45,000	MMCA	Emergency Response and Spill Prevention
- Polychlorinated Biphenyls (PCB) [Toxic Substances Control Act (TSCA)]	$210,000	MMCA	Emergency Response and Spill Prevention
- Pesticides [Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)]	$359,800	MMCA	Engineering and Enforcement

[1]MMCA = (Bureau of) Materials Management & Compliance Assurance; WPLR = (Bureau of) Water Protection & Land Reuse

Note 1 - $800,000 goes toward the PPA objectives. $1,080,00 in additional non-point source management funds are awarded in a separate agreement for pass-through projects. They support non-point source projects on a statewide basis and also projects for specific river and coastal basins. This funding is listed on the next page.

Additional EPA program grants to CT DEP that contain specific language related to Quality Assurance
(typically a section under "Programmatic Conditions" that references QAPPs and the agency's QMP)

- Titles and Authorities, Funding Amounts, and Notes from the CT DEP Bureau of Financial and Support Services, Financial Management Division.
- Lead DEP Bureau and Division from multiple sources.

Federal Program Title/ Federal Authority	Annual EPA Funding Amount (average for recent years)	Lead DEP Bureau	Lead DEP Division
- Air Fine Particulate Ambient Monitoring CAA, Sec. 103	$400,000 to $450,000	Air Management	Planning and Standards

- Pollution Prevention
Pollution Prevention Act of 1990, Sec.6605
	$80,000	Office of the
		  Commissioner
			Office of Planning and
			  Program Development

- Superfund, Pre Remedial Comprehensive Environmental Response Compensation Liability Act (CERCLA) Sec. 104	see Note 1 below	WPLR	Remediation
- Superfund, Remedial CERCLA Sec. 104(d)(1)	$200,000 to $ 285,000	WPLR	Remediation
- Brownfields Response Program CERCLA Sec. 128(a)	$940,000	WPLR	Remediation
- Water Quality Planning CWA, Sec. 604(b)	$100,000	WPLR	Planning and Standards
- Long Island Sound Study CWA, Sec. 119(d)	see Note 2 below	WPLR	Planning and Standards
- Non-point source management CWA Section 319	$1,080,000 See Note on previous page	WPLR	Planning and Standards
- Total Maximum Daily Loads (TMDL) Support CWA Sec. 104(b)(3)	see Note 3 below	WPLR	Planning and Standards
- Leaking Underground Storage Tank (LUST) Trust SWDA Sec. 2007(f)(2) & 8001 (a) & (c)	$600,000 to $750,000	MMCA	Emergency Response and Spill Prevention
- LUST Prevention Assistance Agreement SWDA Sec. 9011	$540,000 See Note 4 below		

Note 1 - The Pre Remedial Program has not received funding on an annual basis. During the current grant period, which spans the period 07/01/08 to 06/30/11, DEP received one federal award in the amount of $75,312.

Note 2 - The Long Island Sound Study has received the following funding levels since 2008: 2008 - $1,858,311; 2009 - $1,404,607; and 2010 (request pending) - $2,053,751. The funding levels have increased during this period due to a new initiative, Stewardship/Land Acquisition, which provides funding for the acquisition of coastal land to increase conservation efforts along Long Island Sound. The amount of funding for this new initiative, which is included in the previously listed funding levels, is: 2008 - $650,000; 2009- $300,000; and 2010 (request pending) - $750,000.

Note 3 - The TMDL Support program received a total of $130,000 for the current grant period 04/01/09 to 03/31/12

Note 4 – In FY08, states were allowed to use LUST funds, previously targeted for corrective action, for UST leak prevention work and other activities to achieve compliance with the Energy Policy Act (EPAct) of 2005 and EPA's annual appropriations acts.

4. Quality System Components

Purpose – To document how an organization manages its quality system and defines the primary responsibilities for managing and implementing each component of the system.

EPA's *Requirements for Quality Management Plans* document (R2) lists the following as standard components of any organization's Quality System:
- Quality system documentation
- Annual reviews and planning
- Management assessments
- Training
- Systematic planning of projects
- Project-specific quality documentation
- Project and data assessments.

DEP has identified four additional components of its particular Quality System:
- Standard agency policies and procedures
- Agency integrated information systems
- Special agency initiatives related to Quality Assurance
- Annual Quality System Objectives

Standard Components

Quality system documentation:
DEP's Quality Management Plan is the agency's basic Quality System documentation. The agency's Quality Assurance Coordinator prepares the QMP and circulates it for review within the Bureaus of Air Management, Materials Management and Compliance Assurance, and Water Protection and Land Reuse.

Annual reviews and planning:
DEP intends to carry out annual reviews and updates of its Quality Management Plan, as required by EPA.

Management assessments:
DEP bureaus, divisions and programs conduct a variety of reviews and assessments that relate in different ways to data quality. The agency plans to begin a series of annual assessments tied specifically to the quality system objectives discussed elsewhere in this document.

Training:
DEP does not have a centralized Training Plan associated with Quality Assurance. Individual program and project managers are principally responsible for determining staff training needs and seeing that those training needs are met.

Systematic planning of projects:
Managers and staff responsible for DEP's environmental programs should be familiar with the planning that's recommended in conjunction with the development of Quality Assurance Project Plans. Specifically they should be familiar with the EPA document *Guidance on Systematic Planning using the Data Quality Objectives Process* – QA/G4

Project-specific quality documentation:
Individual Quality Assurance Project Plans constitute DEP's basic project-specific quality documentation. They should be prepared and submitted for approval whenever required by EPA and revised as necessary to remain accurate and up-to-date.

Project and data assessments:
DEP does not have a centralized system for conducting project and data assessments. Individual Project Managers are responsible for assuring that assessments called for in individual QAPPs are carried out and documented, and corrective steps taken when necessary.

Additional Components

Standard agency policies and procedures:
Wherever practical, DEP will use existing mechanisms, such as standard agency policies and procedures, to further the objectives of its Quality System. These standard policies and procedures are documented throughout this QMP.

Agency integrated information systems:
DEP has invested substantial funding and staff resources over the last several years to develop SIMS, the Site Information Management System. SIMS evolved out of DEP's participation in EPA's One-Stop initiative. As the name implies, the vision behind SIMS is to eventually integrate all agency information associated with a particular site of interest to the agency (such as a facility with active permits from different programs) within a single information system available to all DEP staff and eventually the public. Additional information systems are currently under development that build upon and leverage the initial version of the system. Of particular relevance to Quality Assurance is the Ambient Water Quality Data Exchange project.
Other major projects are expected to follow that will either build directly on SIMS or work with it. One example is an electronic document management system for DEP's Public Records Center.

Special agency initiatives related to Quality Assurance:
From time to time DEP undertakes special projects that have a direct connection to Quality Assurance. A current initiative is the RCP (Reasonable Confidence Protocol) initiative, developed with input from EPA NE QA personnel. The following overview is from DEP's public website:

> The CTDEP expects responsible parties and environmental professionals to ensure that the analytical data generated during environmental investigations conducted in accordance with the CTDEP's Site Characterization Guidance Document (SCGD), effective September 1, 2007, are of a known and appropriate quality. CTDEP also expects responsible parties and environmental professionals to ensure that the analytical data generated during remediation projects are of a known and appropriate quality.
> To assist responsible parties and environmental professionals in evaluating the quality of analytical data, the CTDEP Quality Assurance and Quality Control Work Group, (the Work Group) developed the Reasonable Confidence Protocols (RCPs)....
> The RCPs are analytical procedures that include specific laboratory Quality Assurance and Quality Control (QA/QC) criteria that produce analytical data of known and documented quality.

Additional information about the Reasonable Confidence Protocols is available at
http://www.ct.gov/dep/cwp/view.asp?a=2715&q=324958&depNav_GID=1626
The Site Characterization Guidance Document is available at
http://www.ct.gov/dep/lib/dep/site_clean_up/guidance/Site_Characterization/Final_SCGD.pdf

Annual Quality System Objectives:
These are referenced in Section 2 and throughout this plan.

5. Personnel Qualification and Training

Purpose – To document the procedures for assuring that all personnel performing work for an organization have the necessary skill to effectively accomplish their work.

General Personnel Qualifications

DEP, as an executive branch state agency, must adhere to an extensive set of laws, regulations, and other policies and procedures that control the hiring, ongoing employment, and promotion of its employees. The Department of Administrative Services (DAS) is the lead state agency for all personnel-related policies and procedures. Within DEP, the Human Resources Division is the lead office for personnel-related policies and procedures.

All executive branch employees have standardized job titles (often referred to as class titles or positions) and all job titles have associated Job Descriptions. DAS develops and publishes these generic Job Descriptions for all classified positions within the executive branch. The descriptions include "Example of Duties," and "Minimum Qualifications Required." Job Descriptions for similar groups of classes are periodically reviewed and revised, typically by a committee that includes representatives from agencies that employ significant numbers of staff in those classes.

All DAS job descriptions are accessible online at
[http://das.ct.gov/HR/JobspecNew/JobSearch.asp]
The DAS Job Description for "Environmental Analyst 1," a common entry-level professional position at DEP, is included as Appendix F in hardcopy versions of this QMP.

When DEP receives approval to fill a particular position, the appropriate program or division staff prepare a Job Announcement, which is then reviewed by Human Resources and published. Job Announcements identify the name of the classified position to be filled and provide a "Description of Duties," "Experience and Training" requirements, and other elements that pertain to the particular job being advertised. The content of these individual Job Announcements must be consistent with the information and requirements contained in the generic DAS Job Descriptions, but the details are much more specific, as they are tailored to the requirements of particular jobs. The Job Announcement format allows DEP to specify more detailed hiring requirements related to "Experience and Training," and "Special Requirements."

All "Current [State] Job Opportunities," as posted by DAS, are accessible online at
[http://das.ct.gov/fp1.aspx?page=104]

Agency Training Policy

DEP issued a new directive related to training in February of 2008. The directive (5541 D1) is titled "Staff and Organization Development and Job Enhancement through Training and Career Services."

The basic policy reads as follows:

POLICY: The Department is committed to employ and retain talented staff by supporting and providing meaningful on-the-job and other training opportunities so employees may continuously improve their performance and contribute to the agency's mission of protecting the environment and conserving natural resources. To accomplish this goal, the Department's Human Resources Division, in conjunction with the Office of Affirmative Action, has developed a comprehensive staff and organization development program.

Additional excerpts from the directive:

- Supervisors and employees are encouraged to work together to design the most appropriate training plans for the individuals' job duties, skills, abilities, and career goals.

- Managers and supervisors are encouraged to support employees' attendance and on-the-job application of both mandatory and elective training relating to their primary job responsibilities, logical career progressions, upward mobility, lateral, or other opportunities, job enrichment, legal requirements, or certification or licensure maintenance requirements.

- Employees are strongly encouraged to take personal responsibility for their own education, training, and career growth through active participation in various development opportunities both within and outside the Department, including financing some of the programs themselves.

- At a minimum, supervisors and managers are strongly encouraged to discuss employees' staff development issues during required annual performance appraisal reviews per current agency procedures and collective bargaining agreements.

- Within one week of receiving proof of completion of training, employees should submit copies of their certificates of completion or other attendance documents to DEP Human Resources for inclusion in their personnel files, computer databases, and their bureau/office training contacts' records, if applicable.

The directive also states that DEP employees "are allowed" up to 35 to 40 hours a year (depending on contractual work week hour totals) "to pursue career development opportunities."

DEP and the state publicize and make available certain training opportunities for DEP employees, and managers and staff have the ability to seek out other training that's relevant to their work. Examples of training promoted by DEP or the state include:

- An extensive selection of "In-Service" classes offered through a partnership between DAS and the Connecticut Community College System.

- Information technology training offered by a group of commercial providers on contract with the state Department of Information Technology (DOIT). DEP staff can take regularly scheduled classes conducted by these vendors at a reduced rate, or set up custom classes. DEP has an information technology training facility at its Hartford headquarters.

- Training coordinated by DEP's Health and Safety unit, including classes "required by a specific OSHA, EPA, FRA or other Regulation" or required "under the General Duty Clause of the OSHA Act."

- Other DEP sponsored training. DEP periodically sponsors training on a variety of subjects. An example related to Quality Assurance is the training held on the "Connecticut Reasonable Confidence Protocols" (RCPs, see Section 4). Announcements about upcoming agency-sponsored training opportunities typically are made via email.

There is no single agency funding source for training. Funds for most training and associated professional development must come from program or division budgets, grants, union funds, etc. Some divisions within DEP include training as a line item in their individual annual budgets, but there is no agency requirement to do this. From time to time the agency may choose to pay for certain training that it considers important, rather than

requiring individual programs to provide funding. Additional agency and state policies and procedures exist when staff apply to take specific training.

<u>Personnel Qualifications and Training for Environmental Programs</u>

Project Managers for individual environmental data projects are responsible for identifying and adhering to any necessary special training or certification requirements associated with a project subject to EPA's Quality System requirements. The required format for a standard Quality Assurance Project Plan includes a specific element within the "Project Management" section named called "Special Training/Certification" (see Section 9), which should be used to document any such needs.

DEP Quality System Objective for FY09: - Sponsor QMP and Quality System awareness training in conjunction with approval of the 2008 DEP QMP.

6. Procurement of Items and Services

Purpose – To document the procedures for purchased items and services that directly affect the quality of environmental programs.

General Procurement Process

DEP, as an executive branch state agency, must adhere to an extensive set of laws, regulations, and other policies and procedures in any situation where it intends to pay another party to deliver a product or perform some kind of service. As an example, a single relevant document from the Office of Policy and Management (OPM), titled "Personal Service Agreements - Standards and Procedures" is 145 pages long. Objectives behind these practices are intended to encourage open and fair competition, safeguard the state's financial resources, eliminate any opportunity for favoritism, and promote certain government policies.

Procedures for the procurement of items and services can be divided into three basic categories:
- The purchase of any kind of information technology (IT) equipment and service, including procurements that require Requests for Proposals (RFPs) or procurements that require negotiating and approving a contract.
- The purchase of all other standard goods and services (typically referred to as "buying off contract," meaning the ability to take advantage of an existing state contract).
- The procurement of one-of-a-kind, non-IT-related items and services. Such procurement may require an RFP. It may require approving a contract or similar document. Included in this category are grants awarded by DEP and formal agreements between DEP and other state agencies and other government entities that involve funding originating with DEP.

Authority for the purchase of IT equipment and services by executive branch agencies resides with the Department of Information Technology (DOIT). DOIT delegates some purchasing authority to individual agencies such as DEP. Additional details about prescribed practices for the purchase of IT equipment and services are included in Chapter 7.

Authority for the purchase of all other goods and services by executive branch agencies resides with the Department of Administrative Services (DAS). DAS delegates some purchasing authority to individual agencies such as DEP. The DAS Procurement website - [http://das.ct.gov/cr1.aspx?page=8] - contains a range of information concerning state purchasing procedures.

Contracts developed for the procurement of specific items or services must adhere to a set of rules and a set of review and approval steps, that both involve multiple state agencies besides DEP: DAS, OPM, the Attorney General's Office, and the State Comptroller's Office. One type of standard contract for the provision of services is called the Personal Service Agreements, or PSA. OPM maintains a website that provides details about requirements for PSAs - http://www.ct.gov/opm/cwp/view.asp?a=2982&q=383012&opmNav_GID=1806.

Within DEP, the authority for the procurement of standard goods and services lies with the "Purchasing Unit," part of the Agency Support Services Division of the Bureau of Financial and Support Services (FSS, see Organizational Chart). The Purchasing Unit processes all approved agency purchase requests. Additional authority for the procurement of IT-related goods and services exists within the Office of Information Management (see Chapter 7).

The DEP authority for processing contracts and grants issued by DEP lies with the Financial Management Division of FSS. As with purchase requisitions, Individual program staff draft contract details. The draft contract language is approved by a division director or designee and then processed by the Financial Management Division. All contracts, regardless of the dollar amount, must be reviewed and signed by the Commissioner or appropriate Deputy Commissioner. All contracts are subject to some level of review by other state agencies.

Procurement of items and services, as with many other prescribed management practices within DEP, are covered by specific agency directives. The following directives address procurement:
- Manual/Code 5310/D1: Procurement and Invoicing of Goods and Services
- Manual/Code 5260/D1: Processing Contracts (a.k.a. Personal Service Agreements) and Grants (issued by DEP)

Requests to procure specific items or services originate within individual DEP program units or divisions. Staff associated with a particular unit needing an item or service are responsible for preparing written purchase requests or other documents that accurately specify the unit's particular item or service requirements, plus a justification for the purchase. Such requests should include all associated technical and quality requirements.

Every request to procure an item or service undergoes a formal review and approval process within DEP. For many types of requests this process has been automated as part of the "Core-CT" state information management system (see below). The steps of the review and approval process vary depending on factors such as the cost and type of item or service being requested and the number of vendors considered qualified to provide the item or service. At a minimum, purchase requests must be reviewed and approved by division directors or their designees to ensure that they accurately represent the item or service needed by the program unit. Expensive or complex procurement proposals are typically subject to multiple review and approval steps and often require the involvement of other state agencies. These additional steps are designed to ensure that the request is complete and accurate, that it can be paid for, and that it adheres to agency and state policies and standards. The request can be approved, denied, or modified at any step in the review and approval process.

The state procurement process has become more automated and standardized in recent years. Purchase requests for all standard goods and services by all executive branch agencies are now entered into an automated statewide procurement system that's part of "Core-CT," Connecticut's "integrated financial, human resources and payroll system." To streamline the selection and ordering process for standard products, DAS has integrated a set of online catalogs into the Core-CT system. DAS also posts all approved state purchasing contracts online – [http://das.ct.gov/cr1.aspx?page=12]. This information makes it easier for DEP to purchase from existing contracts.

Records of all goods and purchases requested, approved, and purchased through the Core-CT system are retained in the system. DEP staff with appropriate system access privileges can access this information. However, certain supplemental information associated with purchase requests may only exist in hardcopy form.

OPM has established a separate automated system for processing and managing information associated with PSAs and similar contracts.

Responses to solicitations typically take the form of vendor responses to bid solicitations (RFPs) or responses to grant announcements. RFPs must state the general criteria to be used to evaluate bid responses and should include all relevant technical and quality

requirements. In cases when an RFP is used for procurement, a committee is formed for the purpose of reviewing the responses and making an award recommendation, using written score sheets with entries that correspond to the evaluation criteria.

<u>Procurement of Items and Services for DEP Environmental Programs</u>

Project Managers for individual environmental data projects are responsible for identifying and adhering to any necessary special requirements for purchased items or services associated with a project subject to EPA's Quality System requirements.

There are no specific DEP procurement processes in place that apply only to environmental programs covered by this Quality Management Plan.

7. Documents and Records
*Purpose – To document appropriate controls for quality-related documents and records
determined to be important to the mission of the organization.*

Overview - Documentation and the EPA Quality System

Documentation is a key element of EPA's Quality System requirements and guidance. This is most evident in the agency's requirement for both EPA and external organizations to prepare and maintain Quality Management Plans and Quality Assurance Project Plans, but the importance of documentation extends to many other aspects of the system. For example, certain types of assessment tools promoted and used by EPA (see Section 11) rely heavily on the existence of documentation.

General Records Management Policies and Procedures

DEP, as an executive branch state agency, must adhere to a set of laws, regulations, and other policies and procedures that control how it manages documents and records, both paper and electronic. The Office of the Public Records Administrator (OPRA), part of the Connecticut State Library, is the lead state agency for all policies and procedures related to public records. The OPRA website is at http://www.cslib.org/publicrecords/. The State Freedom of Information Commission also plays a role in establishing policies and procedures related to public records. The Commission's website is at http://www.state.ct.us/foi/. Within DEP, the lead office for policies and procedures related to public records is the Office of Information Management (OIM), the same office that houses the agency's Quality Assurance Coordinator.

DEP manages its public records through its Records Retention program and several Records Retention directives. DEP's Records Retention Program directive includes the agency's basic Records Retention policy, which states the following: "In accordance with the Connecticut General Statutes 11-8 and 11-8a, employees of the Department of Environmental Protection may not destroy any public record without prior approval from the Office of the Public Records Administrator."

As required by OPRA, DEP has a designated Records Management Liaison Officer (RMLO) located in OIM and approximately two dozen "Sub RMLOs" representing all major agency programs or divisions, who function as liaisons between their units and the agency RMLO.

In addition to the primary Records Retention Program directive, several other relevant directives exist:
- Access to the DEP Records Center located at 79 Elm Street, Hartford, CT
- Photocopying DEP records from bureaus/programs in the DEP Records Center
- Purging Records Prior to Filing and Storage.

The "DEP Records Center," mentioned above, is a facility managed by OIM that houses many types of DEP records and makes them available to the public and DEP staff in a secure environment. The Records Center has recently undergone a major physical overhaul to bring it into compliance with fire code regulations and improve and increase its storage and retrieval capabilities. While the records stored at the Records Center are almost exclusively paper documents at the present time, plans are in place to begin an ambitious initiative to electronically scan the Center's contents and make the documents available to the public and DEP staff through an automated Document Management System.

DEP Quality System Objective for FY09: conduct a review to make sure that all environmental programs covered by this plan have relevant information included on approved Records Retention Schedules as required by Connecticut's Public Record Program. The Records Retention directive documents a procedure for a program or division to take an inventory of records and develop a Records Retention Schedule that must then be approved by the OPRA. As a secondary goal, determine if comparable categories of records are being dealt with consistently across programs, or if discrepancies exist. If discrepancies do exist, propose guidelines to bring about consistency.

Document and Record Management for Environmental Data Projects

Project Managers for individual environmental data projects are responsible for managing QAPPS and all other documents and records associated with individual environmental data projects. The required format for a standard QAPP includes a specific element within the "Project Management" section called "Documents and Records," which should be used to document how such materials should be managed.

There are no specific DEP document and record management policies and procedures in place that apply only to environmental data programs.

DEP Quality System Objective for FY09: Assemble all QAPPs expected to be active at/by the end of FY09 and post them on DEP's intranet website. QAPPs not currently available in electronic format will be converted and then posted. At the present time there is no central repository for agency QAPPs in either electronic or hardcopy format. This initiative is in keeping with the agency's push to implement more progressive document management procedures. Approved QAPPs should be available to DEP staff as a reference, with the expectation that their existence online will increase awareness of DEP's Quality Assurance operations, make the development of new QAPPs more efficient, make it easier for management to identify areas where increased standardization might be warranted.

8. Computer Hardware and Software

Purpose – To document how the organization will ensure that computer hardware and software satisfies the organization's requirements.

General Management of Information Technology and Systems

The general management and oversight of computer hardware and software resources within DEP is shaped by a set of policies and procedures specific to DEP, additional state government policies and procedures, and corresponding organizational structures and authorities. There are no specific current or recent initiatives that focus or have focused exclusively on the computer hardware and software needs of DEP environmental programs covered by this Quality Management Plan.

The Office of Information Management (OIM) oversees DEP's information technology infrastructure and information management resources. OIM is the same office that houses the agency's Quality Assurance Coordinator. The office is divided into a number of small functional units designed to focus on specific aspects of information technology and management (see OIM's organizational chart). OIM is ultimately responsible for all aspects of providing and supporting the appropriate hardware and software resources needed to conduct the agency's many tasks, in a fiscally responsible manner, and in such a way as to promote technology standardization and interoperability.

Two other entities play an important role in shaping DEP's hardware and software environment from the perspective of policies and procedures. The first is a separate state agency, the Department of Information Technology (DOIT: http://www.ct.gov/doit/). The second is the DEP Information Management Strategy Board (IMSB).

DOIT is Connecticut's lead state agency "for the provision of technology services." As stated on DOIT's website, "State of Connecticut IT [Information Technology] policies and technical standards are published by DOIT under the authority of the Chief Information Officer as specified in CGS 4d-2 (c). 'The Chief Information Officer shall: (1) Develop and implement an integrated set of policies and architecture pertaining to information and telecommunication systems for state agencies; (2) develop a series of comprehensive standards and planning guidelines pertaining to the development, acquisition, implementation, and oversight and management of information and telecommunication systems for state agencies.'"

DOIT, also in its capacity as lead IT agency for the state, has authority for the purchase of IT equipment and services by executive branch agencies. It delegates some purchasing authority to individual agencies such as DEP. DOIT manages a wide range of state contracts that typically are used by agencies such as DEP to purchase common hardware and software.

All proposed computer hardware and software purchases originating within the agency must be reviewed and approved by OIM. Most of the hardware and software purchased by DEP conforms to standards established by DEP or DOIT. It is OIM's responsibility to evaluate proposed hardware and software products.

DEP and DOIT interact in many different ways and at many different levels. Within OIM, for example, the Information Technology Manager who oversees the Information Technology portion of the office and reports to OIM's director (see OIM's organizational chart) is a DOIT employee who is "embedded" within DEP, a model repeated in other state agencies. DOIT

also provides some of the basic technology services used by most executive branch agencies, including DEP, such as email and web access and associated security controls.

The second entity referred to above, that also plays an important role in shaping DEP's hardware and software environment, is the DEP Information Management Strategy Board, formed in the spring of 2006. To quote from its charter, the IMSB "exists to ensure that Information Management (IM) solutions meet the business requirements of DEP. These IM solutions include the information technology infrastructure needed to support the baseline needs of the agency, the application and information solutions needed to support agency strategies and common needs, and the use of new technology that can be utilized to support the agency's strategic business requirements." In simple terms, proposed major IT/IM projects, policies, expenditures, etc. are reviewed by the IMSB from a DEP business perspective and endorsed by the Board prior to implementation or funding commitments. Some projects may undergo separate technical reviews by OIM staff and other qualified DEP staff. The IMSB currently consists of 17 members, primarily directors and assistant directors, from throughout the agency. It's chaired by the Director of OIM and includes the embedded DOIT Information Technology Manager referenced above. The IMSB meets on a monthly or bimonthly basis and makes its recommendations to OIM and the DEP commissioner and her senior staff. OIM has developed a "Project Profile" Word document template that program staff have started using to document proposed IT/IM projects that are reviewed by the IMSB.

Basic Infrastructure

Every permanent, fulltime DEP employee based at DEP headquarters and selected field offices is equipped with a minimum level of basic, standardized information technology. Currently that minimum technology consists of a mix of desktop and laptop computers deployed in 2008, running Microsoft Windows XP as the Operating System and Microsoft Office 2007 as the client suite. Programs or divisions typically have the ability to acquire more powerful desktop workstations as their needs and financial resources allow. All agency computers are part of a common network. Data stored on the network is backed up on a daily basis by OIM staff using automated methods.

Many environmental programs within DEP make extensive use of standard client software such as MS Word, Excel, and Access. There is much additional software used within parts of the agency, beyond these standard client tools. Some is standardized, while other software is specific. Examples of standard software include the suite of GIS products from ESRI and publishing software from Adobe.

DEP's strategy for using standardized database and applications software is changing at this time. When OIM was formed in 2005, one of the first issues it identified was the proliferation of MS Access databases in use at the DEP program level. These databases are becoming increasingly complex, many need to be modified to reflect changing business needs, and in many cases the original developers are no longer associated with DEP. The result is that DEP staff turn to OIM staff for assistance. In 2006 OIM identified a new enterprise database and applications development standard: Microsoft SQL Server and .NET. Several database/applications projects are underway that utilize this technology. An effort is underway to identify the agency's most important databases (mostly developed in MS Access) and establish priorities for converting them to SQL Server.

DEP Quality System Objective for FY09: - Develop a strategy for supplying all necessary DEP staff with standardized statistical software adequate for their jobs. Statistical software such as SAS and Minitab is currently used in parts of the agency, including some programs

that perform environmental data operations, but there is no single agency standard. The Office of Information Management will conduct a review to identify common needs and possible common solutions. All programs covered by this plan will be included.

Hardware and Software for DEP Environmental Programs

Project Managers for individual environmental data projects are responsible for identifying hardware and software needed in conjunction with a project subject to EPA's Quality System requirements. The required format for a standard Quality Assurance Project Plan includes a specific element within the "Data Generation and Acquisition" section named called "Data Management" (see Section 9). Within this element, project managers are to "include any required computer hardware and software" needed for the project.

9. Planning

Purpose – To document how individual data operations will be planned within the organization to ensure that data or information collected are of the needed and expected quality for their desired use.

<u>Overview – Project Planning and the EPA Quality System</u>

Documented, systematic project planning is arguably the most important element of EPA's vision of a Quality System as it is applied to environmental programs. EPA strongly promotes the policy that a thorough planning exercise should precede any project that acquires, generates, compiles, or uses environmental data. The results of this planning should be documented accurately and completely in a Quality Assurance Project Plan (QAPP), which must then be reviewed and approved by EPA (typically EPA NE QA) before the project begins. QAPPS are typically approved for five years. The processes documented in any approved QAPP must be followed once the project is underway and all QAPPs must be reviewed annually and revised as necessary to reflect any changing conditions related to the project.

EPA's National Quality System program and the EPA New England Quality Assurance Unit both have produced extensive written material designed to guide various aspects of the Quality Assurance project planning process. Relevant EPA websites and individual documents are referenced in different sections of this plan, but the following are some of the key EPA documents related to environmental data project planning as it relates to Quality Assurance and to the development of QAPPs that adhere to EPA's requirements:

EPA Requirements for Quality Assurance Project Plans (QA/R-5) – March, 2001; reissued May, 2006
http://www.epa.gov/quality/qs-docs/r5-final.pdf

Guidance for Quality Assurance Project Plans (QA/G-5) – December, 2002
http://www.epa.gov/quality/qs-docs/g5-final.pdf

Guidance on Systematic Planning using the Data Quality Objective Process (QA/G-4) – February, 2006
http://www.epa.gov/quality/qs-docs/g4-final.pdf

EPA New England Quality Assurance Project Plan Program Guidance – [Rev. 2, Jan. 09, 2010]
http://www.epa.gov/ne/lab/qa/pdfs/QAPPProgram.pdf

The required format for a standard QAPP contains 24 individual elements, divided into 4 groups, as follows (from R-5):
Project Management
    Title and Approval Sheet
    Table of Contents
    Distribution List
    Project/Task Organization
    Problem Definition/Background
    Project/Task Description
    Quality Objectives and Criteria
    Special Training/Certification
    Documents and Records
Data Generation and Acquisition
    Sampling Process Design (Experimental design)
    Sampling Methods
    Sample Handling and Custody
    Analytical Methods

Quality Control
Instrument/Equipment Testing, Inspection, and Maintenance
Instrument/Equipment Calibration and Frequency
Inspection/Acceptance of Supplies and Consumables
Non-direct Measurements
Data Management
Assessment and Oversight
Assessments and Response Actions
Reports to Management
Data Validation and Usability
Data Review, Verification, and Validation
Verification and Validation Methods
Reconciliation with User Requirements

It should be noted that the term "Data Quality Objective," which appears in one of the previous document titles, is part of a specific planning process promoted by EPA for environmental programs. The following definitions are from the Glossary section of EPA's QS website:

Data Quality Objectives Planning Process: A systematic strategic development tool based on the scientific method that identifies and defines the type, quality, and quantity of information needed to satisfy a specified use.

Data Quality Objectives (DQOs): Qualitative and quantitative statements derived from the DQO Planning Process that clarify the purpose of the study, define the most appropriate type of information to collect, determine the most appropriate conditions from which to collect that information, and specify tolerable levels of potential decision errors.

Finally, the term "Graded Approach" is used frequently in EPA QS documentation to refer to establishing an appropriate level of effort when planning for an environmental data project. The following definition is from EPA's QS Glossary:

Graded Approach: The process of basing the level of application of managerial controls applied to an item or work according to the intended use of the results and the degree of confidence needed in the quality of the results.

The EPA New England QAPP Program Guidance document (see previous link) includes the following statement, which includes a reference to using the Graded Approach:

Since the content and level of detail in individual QAPPs will vary according to the work being performed and the intended use of the data, EPA NE supports a "graded approach" when preparing QAPPS. In other words, the amount of documentation and level of detail will vary based upon the complexity and cost of the project. Appropriate consideration should be given to the significance of the environmental problem to be investigated, the environmental decision to be made, and the impact on human health and the environment.

Planning for Environmental Data Projects

Project Managers for individual environmental data projects are responsible for conducting the necessary planning for projects subject to EPA's Quality System requirements, and documenting the results of the planning in a Quality Assurance Project Plan.

DEP Quality System Objective for FY09: - Develop and maintain a status matrix of pending and active QAPPS, and post it on DEP's intranet website, with updates reported to EPA NE

QA on a monthly basis or whenever requested. This is intended as a basic management tool. At the present time DEP's list of QAPPs is updated on an irregular basis and is of limited usefulness. The exact data and software formats have to be determined. (also see Section 7 – posting QAPPs on DEP's intranet website).

As discussed in Section 1, EPA NE QA has established certain content requirements for the "Annual Reporting of Quality System Progress," a document that organizations must submit in conjunction with the general requirement to review and update Quality Management Plans annually. One of the requirements covers QAPPs. Specifically, DEP must submit a current QAPP Inventory List as part of the report. The successful implementation of the above objective would result in the ability to share this information with EPA NE QA at least monthly, not just on an annual basis.

See Appendix G (in hardcopy versions of this QMP) for a list of active DEP QAPPs (document link at [http://www.ct.gov/dep/lib/dep/quality_assurance/dep_qapp_table_published_01-11.pdf])

10. Implementation of Work Processes

Purpose – To document how work processes will be implemented within the organization to ensure that data or information collected are of the needed and expected quality for their desired use.

Overview – Work Process Implementation and the EPA Quality System

EPA promotes Standard Operating Procedures (SOPs) and similar procedures as a valuable set of tools to be used by all organizations that carry out environmental programs subject to EPA's Quality System requirements. EPA defines an SOP as "a written document that details the method for a program, operation, analysis, or action with thoroughly prescribed techniques and steps, and that is officially approved as the method for performing certain routine or repetitive tasks." (From the "Glossary of Quality-Related Terms" section of EPA's QS website.) EPA has published a guidance document for developing SOPs titled *Guidance for Preparing Standard Operating Procedures (SOPs)* - QA/G-6 (document link at http://www.epa.gov/quality/qa_docs.html under heading "General Guidance").

Some organizations with Quality Systems for environmental programs have structured, centralized SOP policies that require that such standard procedures be systematically created, formatted, reviewed, catalogued, published, revised, etc. following protocols established at the bureau, branch, or agency level. Such a system usually includes something called an "SOP for SOPs," a prescribed procedure for documenting standard procedures. An obvious advantage to a structured, centralized approach to using standard operating procedures is the opportunity it provides for increased staff efficiency and improved consistency in performing repetitive project tasks (develop procedure once, use many times).

Work Process Implementation at DEP

Within DEP's decentralized Quality System there is no central repository of standard procedures and no agency policy or set of procedures related to SOPs. Decisions about the development, use, documentation and distribution of Standard Operating Procedures and related methods are made at the Bureau, Division, or program level. In 2005 the Quality Assurance Coordinator developed a draft "Procedure for Developing and Approving Standard Operating Procedures." This document may prove useful to units considering expanding their use of SOPs. The procedure, however, has not been proposed for formal adoption for use within the agency.

DEP Environmental Data Project Work Process Implementation

Project Managers for individual environmental data projects are responsible for developing standard operating procedures and/or referencing existing procedures to be used in conjunction with a project subject to EPA's Quality System requirements. The required format for a standard Quality Assurance Project Plan includes a section called "Data Generation and Acquisition" in which SOPs and methods are to be documented. (See Section 9 for list of individual QAPP elements.)

DEP Quality System Objective for FY09: - Complete a pilot project for documenting and posting Standard Operating Procedures on DEP's intranet website. The benefits should be similar to those achieved by posting QAPPs online (see Section 7): increased awareness, greater efficiencies, improved consistency, etc. An individual program will be selected to be used as the pilot.

11. Assessment and Response

Purpose – To document how the organization will determine the suitability and effectiveness of the implemented quality system and the quality performance of the environmental programs to which the quality system applies.

Overview - Assessments and the EPA Quality System

In the context of Quality Systems, EPA defines an assessment as "a general evaluation process used to evaluate the performance, effectiveness and processes of a management and/or technical system, e.g., peer review, surveillance, and audits." (From the "Glossary of Quality-Related Terms" section of EPA's QS website.) EPA considers formal assessments to be a key component of Quality Systems. As the above definition states, EPA promotes the use of assessments for two types of systems: management systems, such as Quality Systems, documented through QMPs, and technical systems, such as environmental data projects, documented through QAPPS. This definition also makes it clear that EPA recognizes different types of assessments. A separate list of "available assessment tools" is included in the document *EPA Requirements for Quality Management Plans-EPA QA/R2*: "assessment tools include quality systems audits, management systems reviews, peer reviews, technical reviews, performance evaluations, data quality assessments, readiness reviews, technical systems audits, and surveillance."

Additional information about EPA QS-related assessments can be found at EPA's QS website. Several documents listed in the General Guidance section of the website (http://www.epa.gov/quality/qa_docs.html) relate specifically to types of assessments.

DEP Quality System Assessments

As noted in Section 4, DEP units conduct a variety of reviews and assessments that relate to data quality and quality assurance, and some Quality System self-assessment does occur at the bureau level. The introduction of annual Quality System objectives, introduced in Section 2 and discussed in more detail in Section 12, is designed to provide a mechanism for improving the agency's Quality System and an opportunity to perform annual assessments that focus on tangible, measurable objectives. Some of the QS objectives themselves, while not called assessments, will include an assessment component. For example, one objective is to make sure that all environmental programs covered by this plan have relevant information included on Records Retention Schedules as required by Connecticut's Public Record Program. This task would logically start by determining (assessing) which programs within the Environmental Quality Branch already have approved schedules and reviewing (assessing) what categories of records are listed on these approved schedules. These may be thought of as "theme-based" assessments, as opposed to the more commonly referenced program or project-based assessments.

As noted in Section1, EPA NE QA has begun to conduct periodic assessments of DEP's Quality Systems, starting in 2008. Other EPA offices may also conduct assessments from time to time. One significant regular assessment carried out by EPA NERL is the technical system audit (TSA) that focuses on DEP's air monitoring program. Clean Air Act regulations require such assessments to be performed at least every three years. The most recent audit was performed from May through August of 2007 and covered calendar year 2005 through 2007.

DEP Environmental Data Project Assessments

Project Managers for individual environmental data projects are responsible for documenting all planned assessments for projects subject to EPA's Quality System requirements and ensuring that they are completed and the results reported. The required format for a standard Quality Assurance Project Plan includes a specific element within the "Assessment and Oversight" section named "Assessments and Response Actions" (see Section 9), which should be used to document all planned assessments.

EPA NE QA Reporting Requirements for Assessments

As discussed in Section 1, EPA NE QA has established certain content requirements for the "Annual Reporting of Quality System Progress," a document that organizations must submit in conjunction with the general requirement to review and update Quality Management Plans annually. One of the requirements covers assessments. Specifically, DEP must report on annual activity associated with the following categories of assessments:

- Quality System Assessments of DEP
- Quality System Assessments of Other Organizations (conducted by DEP)
- Technical Assessments
- Project and Data Reports Assessed

A mechanism for tracking and assembling this information needs to be developed. This is a possible future DEP Quality System objective.

State Assessments

The State Office of the Auditors of Public Accounts (APA) regularly audits DEP. In addition, several staff offices within the Connecticut General Assembly, as well as the APA, have the authority to carry out special audits of selected DEP operations at any time. While these assessments touch on a wide range of operations and issues, including DEP's financial policies and procedures, they may include the review of some aspects of the agency's operations that relate to its Quality System.

APA is "a legislative agency of the State of Connecticut whose primary mission is to conduct audits of all State agencies" (from the APA website - http://cga.ct.gov/apa/). The most common type of audit conducted by the APA is a "statutory audit." APA conducts such audits at DEP and all other Executive Branch agencies on a continuous two-year cycle corresponding to Connecticut's fiscal year. The most recent completed audit report of DEP covered FY04 and FY05. The last four APA audits of DEP, starting with the report covering FY98 and FY99, are available online at http://cga.ct.gov/apa/Reports2.htm (reports organized by agency name).

In the "Condition of Records" section of each report, the Auditors document "various areas in need of attention and corrective actions." Recommendations are included for each such area. DEP is also given the opportunity to respond to each recommendation in writing prior to the issuance of the final report and that response is included in the report.

As mentioned, from time to time the APA also carries out narrowly focused reviews of certain specific state agency programs, contracts, financial accounts, etc.. Several staff offices of the Connecticut General Assembly (http://www.cga.ct.gov/) - also review agency

programs and activities on a case-by-case basis. These reviews may be part of the ongoing legislative process of studying how state government works and proposing the introduction of new programs, the expansion of agency responsibilities, the reorganization or elimination of existing programs, etc. Two such offices are:

- Office of Program Review and Investigations, reporting to Legislative Program Review and Investigations Committee ([http://www.cga.ct.gov/pri/index.asp])
- Office of Legislative Research (http://www.cga.ct.gov/olr/).

12. Quality Improvement

Purpose – To document how the organization will improve the organization's quality system.

Quality System Improvement at DEP

As introduced in Section 2 and detailed throughout this document, annual Quality System objectives are to be a key part of DEP's Quality System and the primary mechanism used to improve the system. The criteria for developing these objectives is to identify Quality System-related issues, requirements, processes or activities that share the following characteristics:
- they impact multiple environmental programs
- they should be addressed in a consistent manner across programs
- they can be addressed in a way that improves agency decision-making and increases agency efficiency
- they can be addressed in a reasonable timeframe and with reasonable staff and financial resources.

The DEP Quality Assurance Coordinator has chosen the initial set of Quality System annual objectives for FY09 (see Section 2). In subsequent years the QA Coordinator will solicit suggestions for new annual objectives from DEP management and staff and prepare a draft list for review and approval by the DEP Environmental Quality Bureau Chiefs and Deputy Commissioner. Project Managers and QA Bureau Contacts should play a central role in this selection process. At the end of each year (corresponding to Connecticut's fiscal year, July - June) the Director of the Office of Information Management will initiate assessments to verify that the objectives have been met and will report the results to DEP management and EPA New England.

These annual QS objectives will be considered part of the QMP once they have been approved. Information about them will be posted on DEP's Intranet website and shared with EPA New England. Prior to initiating work on the objectives for a given year, the Quality Assurance Coordinator will produce an annual QS Objective Work Plan to document tasks, resources, roles, timelines and milestones associated with meeting each objective.

Other Agency Initiatives Related to Process Improvement

In 2007 DEP began a "Lean" Initiative, based on the process improvement approach and set of methods of the same name. National champions of using Lean in the context of environmental protection include EPA and the Environmental Council of the States (ECOS). A DEP Lean Implementation Team has been formed, and as of October 1, 2008 six Lean Project Teams from the Environmental Quality Branch have received training and are working on their project implementation plans. Another team from the Environmental Conservation Branch will begin work in December 2008.

Quality Improvement for DEP Environmental Data Projects

Project Managers for individual environmental data projects are responsible for identifying project-oriented data quality issues that must be corrected, plus related processes or activities that should be improved. QAPPs will document the assessments that should be carried out as one basic mechanism for identifying quality issues (see Section 11). Project Managers are expected to take the necessary steps to correct all identified data quality issues. They are also responsible for modifying the QAPP when resulting changes to the project warrant it.

At this time DEP has no formal centralized mechanism for tracking specific data quality issues that are recognized in individual programs or projects. While the agency does not have any plans for introducing such a system, it should revisit the issue periodically.

The following statement is from DEP's 2002 QMP. It should remain as a central tenet of the agency's approach to quality assurance.

> All personnel working on environmental programs are encouraged to identify, to plan, to implement, and to evaluate quality improvement activities for their areas of responsibility. Personnel should prevent quality problems wherever possible and report opportunities for improvement as well as quality problems as they are identified.